Claims

1. A compression refrigeration system including at least a compressor (1), a heat rejector (2), an expansion means (3) and a heat absorber (4) connected in a closed circulation circuit that may operate with supercritical high-side pressure, **c h a r a c t e r i z e d** in that an online estimation of coefficient of performance (COP) , or a parameter reflecting the COP, can be used as a signal for optimum regulation and operation of the compression refrigeration system.

2. System according to claim 1, **c h a r a c t e r i z e d** in that carbon dioxide or a refrigerant mixture containing carbon dioxide is applied as the refrigerant in the system.

3. System according to any of the preceding claims 1-4, **c h a r a c t e r i z e d** in that a regulation system may vary pressure on the high pressure side in order to map the COP or the COP reflecting parameter as function of pressure for a given operation condition.

4. System according to any of the preceding claims 1-3, **c h a r a c t e r i z e d** in that the temperature difference between the refrigerant and heat sink at the cold end (temperature approach) can be used as a signal for optimum regulation and operation of the compression refrigeration system.

5. System according to any of the preceding claims 1-4, **c h a r a c t e r i z e d** in that pressure on the high pressure side of the system can be increased until the increase has marginal effect on the temperature approach.

6. System according to any of the preceding claims 1-5, **c h a r a c t e r i z e d** in that pressure on the high pressure side of the system can be increased until temperature approach is equal or lower than a predetermined level.

7. System according to the preceding claims 6, **c h a r a c t e r i z e d** in that the predetermined level may vary with varying operation conditions.

8. System according to the preceding claims 1-7, **c h a r a c t e r i z e d** in that the heat rejector outlet temperature can be used as COP reflecting parameter.